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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/108,447	07/01/1998	GERALD N. COLEMAN	97-677	2408

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EXAMINER	
JOHNSON, JERRY D	
ART UNIT	PAPER NUMBER
1764	31

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/108,447	Applicant(s) COLEMAN ET AL.	
	Examiner Jerry D. Johnson	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9 and 11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-7, 9 and 11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 25, 2002 has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-7, 9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin in view of WO 95/27021 and Schwab.

Dubin, U.S. Patent 5,284,492, teaches an enhanced lubricity water and fuel oil emulsion (column 3, lines 31-37). The emulsion can be either a water in fuel oil or a fuel oil in water emulsion (column 3, lines 41-44). The oil phase comprises a light fuel oil, by which is meant a fuel oil having little or no aromatic compounds and consists essentially of relatively low molecular weight aliphatic and naphthenic hydrocarbons (column 3, lines 45-49). Such fuels include fuels conventionally known as, *inter alia*, diesel fuel (column 3, lines 61-68). The emulsions advantageously comprise water-in-fuel oil emulsions having up to about 90% water by weight. The emulsions which have the most practical significance in applications when combusted alone are those having about 5% to about 50% water and are preferably about 10% to about 35% water-in-fuel oil by weight (column 4, lines 7-15). Although demineralized water is not required, the use of

demineralized water in the emulsion is preferred (column 4, lines 30-35). The emulsions are prepared such that the discontinuous phase preferably has a particle size wherein at least about 70% of the droplets are below about 5 microns Sauter mean diameter. More preferably, at least about 85%, and most preferably at least about 90% of the droplets are below about 5 microns Sauter mean diameter (column 4, lines 38-44). An emulsification system is most preferably employed to maintain the emulsion. A desirable emulsification system comprises about 25% to about 85% by weight of an amide, especially an alkanolamide or n-substituted alkyl amine; about 5% to about 25% by weight of a phenolic surfactant; and about 0% to about 40% by weight of a difunctional block polymer terminating in a primary hydroxyl group (column 5, lines 2+). The addition of a component selected from the group consisting of dimer and/or trimer acids, sulfurized castor oil, phosphate esters, and mixtures thereof significantly increase the lubricity of the emulsion (column 7, lines 15+). The addition of a corrosion inhibitor is taught in column 8, lines 56 to column 9, line 2. Dubin differs from the instant claims in not teaching the addition of an antifreeze additive or an ignition delay modifier.

WO 95/27021 (hereafter WO '021) teaches aqueous fuel compositions for internal combustion engines and a method of producing the same (page 1, lines 27-30). The fuel comprises a fluid emulsion comprising 20 to 80 vol. % water and carbonaceous fuel, preferably 40 to 60 % carbonaceous fuel, about 2 to less than 20 vol. % alcohol, and about 0.3 to 1 vol. % of a nonionic emulsifier (page 1, lines 30-36). The term "internal combustion engine" refers to and encompass any engine in which carbonaceous fuel is combusted with oxygen in one or more combustion chambers of the engine. Presently known such engines include piston displacement engines, rotary engines and turbine (jet) engines, including electric spark ignited and compression, e.g., diesel

engines (page 2, lines 27-31). Tests of fuel mixtures with varying alcohol contents have established the stability of the formulation is good with at least 2% alcohol. (Page 8, lines 13-14). Freezing-point observations indicated a dramatic lowering of the freezing point as the percentage of alcohol is increased (page 8, lines 17-19).

Schwab, U.S. Patent 5,669,938, teaches diesel fuel emulsions containing an emission reducing amount of at least one fuel-soluble organic nitrate ignition improver such as 2-ethylhexyl nitrate (abstract). The organic nitrate ester employed will fall in the range of about 500 to about 50,000 parts by weight of organic nitrate ester per mission parts by weight of the fuel. Preferred concentrations usually fall within the range of 1,000 to 10,000 parts per million parts of fuel (column 3, lines 30-35). Other additives may be included within the fuel composition (column 4, lines 52-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the organic nitrate ignition improver of Schwab and the anti-freeze inhibitor of WO '021 to the diesel fuel emulsion of Dubin in order to provide their known benefits.

Claims 1, 3-7, 9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter-Hoblyn et al in view of WO 95/27021 and Schwab.

Peter-Hoblyn et al, U.S. Patent 5,743,922 (hereafter "Peter"), teach a water and diesel fuel emulsion containing up to about 70%, more preferably about 5% to about 70% water-in diesel fuel. Most preferably, the emulsion comprises about 15% to about 45% water in diesel fuel. The water which is used to form the emulsion is preferably demineralized water (column 2, line 53 to column 3, line 15). The emulsions are prepared such that the discontinuous phase preferably has a particle size wherein at least about 70% of the droplets are below about 5 microns Sauter mean diameter.

More preferably, at least about 85%, and most preferably at least about 90% of the droplets are below about 5 microns Sauter mean diameter (column 3, lines 35-41). A desirable emulsification system comprises about 25% to about 85% by weight of an amide, especially an alkanolamide or n-substituted alkyl amine; about 5% to about 25% by weight of a phenolic surfactant; and about 0% to about 40% by weight of a difunctional block polymer terminating in a primary hydroxyl group (column 4, lines 28+). The addition of a component selected from the group consisting of dimer and/or trimer acids, sulfurized castor oil, phosphate esters, and mixtures thereof significantly increase the lubricity of the emulsion (column 5, lines 47+). The addition of a corrosion inhibitor is taught in column 7, lines 28-41).

Peter differs from the instant claims in not teaching the addition of an antifreeze additive or an ignition delay modifier.

WO 95/27021 (hereafter WO '021) teaches aqueous fuel compositions for internal combustion engines and a method of producing the same (page 1, lines 27-30). The fuel comprises a fluid emulsion comprising 20 to 80 vol. % water and carbonaceous fuel, preferably 40 to 60 % carbonaceous fuel, about 2 to less than 20 vol. % alcohol, and about 0.3 to 1 vol. % of a nonionic emulsifier (page 1, lines 30-36). The term "internal combustion engine" refers to and encompass any engine in which carbonaceous fuel is combusted with oxygen in one or more combustion chambers of the engine. Presently known such engines include piston displacement engines, rotary engines and turbine (jet) engines, including electric spark ignited and compression, e.g., diesel engines (page 2, lines 27-31). Tests of fuel mixtures with varying alcohol contents have established the stability of the formulation is good with at least 2% alcohol. (Page 8, lines 13-14). Freezing-

point observations indicated a dramatic lowering of the freezing point as the percentage of alcohol is increased (page 8, lines 17-19).

Schwab, U.S. Patent 5,669,938, teaches diesel fuel emulsions containing an emission reducing amount of at least one fuel-soluble organic nitrate ignition improver such as 2-ethylhexyl nitrate (abstract). The organic nitrate ester employed will fall in the range of about 500 to about 50,000 parts by weight of organic nitrate ester per mission parts by weight of the fuel. Preferred concentrations usually fall within the range of 1,000 to 10,000 parts per million parts of fuel (column 3, lines 30-35). Other additives may be included within the fuel composition (column 4, lines 52-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the organic nitrate ignition improver of Schwab and the anti-freeze inhibitor of WO '021 to the diesel fuel emulsion of Peter in order to provide their known benefits.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support in the specification as filed for the now claimed limitation of an average droplet diameter of between about 5 microns and about 6 microns, i.e., the specification, as originally filed, teaches an average droplet diameter of about 4 to about 6 microns.

Applicant's arguments filed November 12, 2002 have been fully considered but they are not persuasive.

Applicants argue

> Purified water contains very low concentrations of ions and other impurities. Purified water is not demineralized water and not conventional "water". Demineralized water does not have any mineral concentrations in the water hence demineralized water. As stated in the specification, purified water contains very low concentrations of ions, specifically calcium ions, magnesium ions and silicon. Therefore, a low concentration of minerals can be present in the purified water. (Remarks, page 9).

Applicants further point to page 5, lines 14-28 as teaching the characteristics of "purified water."

Applicants' argument is without merit.

The common accepted meaning of "purify" is to free from undesirable elements. Accordingly, demineralized water is, in fact, "purified water", i.e., water which has been freed from undesirable elements. The teachings on page 5, lines 14-28 of applicants' specification do not in any way exclude demineralized water as "purified water." Specifically, page 14 teaches that the purified water "has a total hardness of less than 10 parts per million and contains no greater than about 2 parts per million calcium and magnesium ions, and no greater than about 1 part per million silicon." Defining "purified water" as preferably containing a total hardness of "less than 10 parts per million and contains no greater than about 2 parts per million calcium and magnesium ions, and no greater than about 1 part per million silicon" includes a total hardness of zero, no parts per million calcium and magnesium ions and no parts per million silicon, i.e., completely demineralized water. Furthermore, as noted by applicants, the cited prior art teaches the use of water and preferably demineralized water. Accordingly the use of "purified water" containing less ions than

"water" and a greater amount of ions than "demineralized water" would have been obvious to one having ordinary skill in the art at the time the invention was made.

Applicants argue

> 5 microns is claimed within the phrase "less than about 10 microns" since 5 microns is less than 10 microns, and therefore can be claimed in the present Application's claims. Secondly, the original Claim 2 stated that the average droplet diameter was "between about 4 microns and about 6 microns". About 5 microns is between about 4 microns and about 6 microns and therefore, there is sufficient support in the specification for a change in the claim to 5 microns from 4 microns. (Remarks, page 11).

Applicant's argument lacks merit.

There is an infinite number of values within the phrase "less than about 10 microns." Additionally, there is an infinite number of values between "about 4 microns and about 6 microns." There is nothing in applicants' specification which would lead one to the now claimed value (i.e., about 5 microns) as opposed to any other value (e.g., 4.1, 4.2, 4.25, 4.3, 4.50, 4.75, 5.25, 5.5, 5.75, etc.).

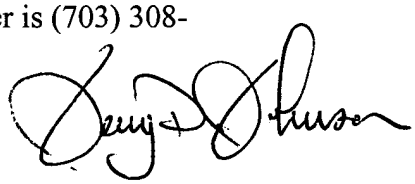
All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry D. Johnson whose telephone number is (703) 308-2515. The examiner can normally be reached on 6:00-3:30, M-F, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jerry D. Johnson
Primary Examiner
Art Unit 1764

JDJ
January 24, 2003